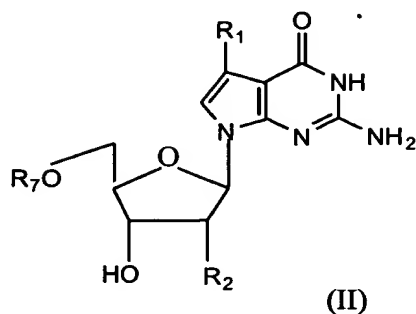


What is claimed is:

CLAIMS

1. Molecule comprising the following moiety:



- 5 wherein  $R_1$  is  $C_{1-10}$  alkyl group optionally substituted by hydroxyl, amino,  $C_{1-4}$  alkoxy or halo; and  $R_2$  is hydrogen or hydroxyl and  $R_7$  is H or a mono-, di-, or tri-phosphate or thiophosphate thereof.

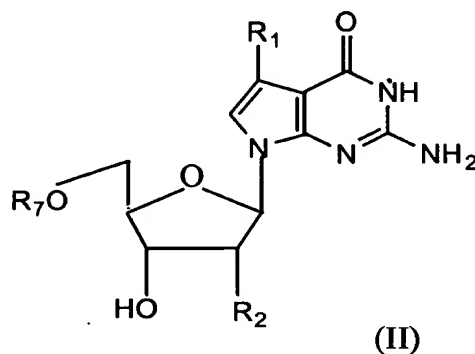
2. The molecule of claim 1, wherein said molecule  
10 is a nucleic acid polymer.

3. The molecule of claim 2, wherein said nucleic acid is DNA.

4. The molecule of claim 2, wherein said nucleic acid is RNA.

5. Method for determining the nucleotide base sequence of a DNA molecule comprising the steps of:

incubating a DNA molecule annealed with a primer molecule able to hybridize to said DNA molecule in a vessel containing, a molecule comprising the following moiety:



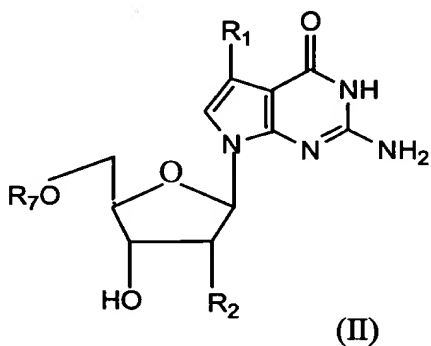
wherein  $R_1$  is  $C_{1-10}$  alkyl group optionally substituted by hydroxyl, amino,  $C_{1-4}$  alkoxy or halo;  $R_2$  is hydrogen or hydroxyl; and  $R_7$  is a tri-phosphate or thiophosphate thereof, a DNA polymerase and at least one DNA synthesis terminating agent which terminates DNA synthesis at a specific nucleotide base in an incubating reaction; and

separating DNA products of the incubating reaction according to size whereby at least a part of the nucleotide base sequence of said DNA molecule can be determined.

6. Method for elongation of an oligonucleotide sequence comprising the step of;

incubating an oligonucleotide sequence with a molecule comprising the following moiety:

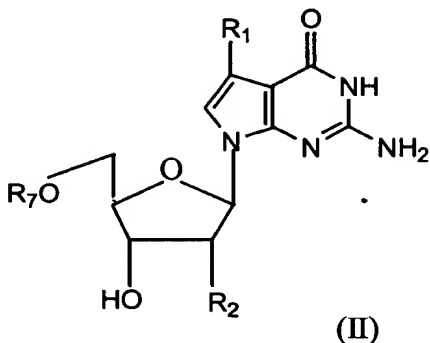
5



wherein  $R_1$  is  $C_{1-10}$  alkyl group optionally substituted by hydroxyl, amino,  $C_{1-4}$  alkoxy or halo;  $R_2$  is hydrogen or hydroxyl; and  $R_7$  is a tri-phosphate or thiophosphate thereof, and a DNA polymerase such that said molecule is added to the oligonucleotide sequence.

10

7. A compound of the formula (II):



wherein  $R_1$  is a  $C_{1-10}$  alkyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkoxy or halo;  $R_2$  is hydrogen or hydroxy; and  $R_7$  is H or a mono-, di- or tri-phosphate or thiophosphate thereof, except that when  $R_1$  is methyl  $R_7$  is not H.

8. A compound according to claim 7 wherein  $R_1$  is a  $C_{2-8}$  alkyl group.

9. A compound according to any one of the claims 7 or 8 wherein the compound of the formula (II) is present as a triphosphate.

10. 7-Ethyl-7-deaza-2'-deoxyguanosine or a mono-, di- or tri-phosphate thereof.

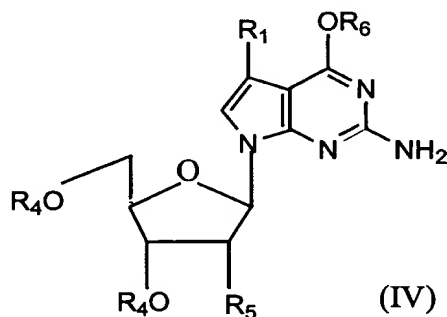
11. Propyl-7-deaza-2'-deoxyguanosine or a mono-, di- or tri-phosphate thereof.

12. 7-Hydroxymethyl-7-deaza-2'-deoxyguanisine or a mono-, di- or tri-phosphate thereof.

13. A triphosphate of a compound according to any one of claims 10, 11 or 12.

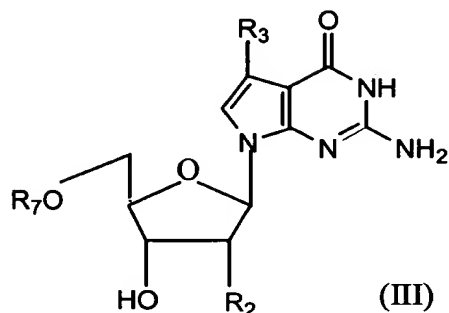
5 14. A process for the preparation of a compound of the formula (II) wherein  $R_1$  is a  $C_{1-10}$  alkyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkoxy or halo;  $R_2$  is hydrogen or hydroxy; and  $R_7$  is H or a mono-, di- or tri-phosphate or thiophosphate thereof, except  
10 that when  $R_1$  is methyl  $R_7$  is not H, which comprises:

(i) the deprotection of a compound of the formula (IV):



15 wherein  $R_1$  is a  $C_{1-10}$  alkyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkoxy or halo and  $R_4$  is a protecting group,  $R_5$  is hydrogen or a group  $OR_4$  and  $R_6$  is a protecting group which is the same or different to  $R_4$ , or

(ii) when  $R_1$  is other than methyl the reduction of a compound of the formula (III)

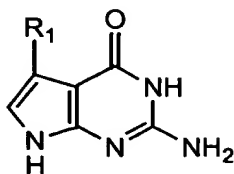


wherein  $R_2$  is hydrogen or hydroxy,  $R_3$  is a  $C_{2-10}$  alkynyl group optionally substituted by hydroxy, amino,  $C_{1-14}$  alkyl substituted amino,  $C_{1-4}$  alkoxy or halo, and  $R_7$  is H or a mono-, di- or tri-phosphate or thiophosphate thereof;

(iii) and optionally thereafter preparing a mono-, di- or triphosphate or thiophosphate.

15. A nucleotide sequence containing a compound of the formula (II).

16. A deoxyribonucleic acid sequence containing a base of the formula:



(IIA)

5 wherein  $R_1$  is is a  $C_{1-10}$  alkyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkoxy or halo.

17. Method for determining the nucleotide base sequence of a DNA molecule comprising the steps of:

10 incubating a DNA molecule annealed with a primer molecule able to hybridize to said DNA molecule in a vessel containing a compound of formula (II) wherein  $R_1$  is a  $C_{1-10}$  alkyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkoxy or halo;  $R_2$  is hydrogen or hydroxy; and  $R_3$  is tri-phosphate or thiophosphate thereof, a DNA

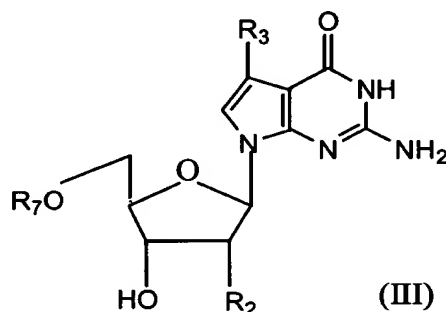
15 polymerase and at least one DNA synthesis terminating agent which terminates DNA synthesis at a specific nucleotide base in an incubating reaction; and

20 separating DNA products of the incubating reaction according to size whereby at least a part of the nucleotide base sequence of said DNA molecule can be determined.

18. Method for elongation of an oligonucleotide sequence comprising the step of;

incubating an oligonucleotide sequence with a compound of formula (II) wherein wherein  $R_1$  is a  $C_{1-10}$  alkyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkoxy or halo;  $R_2$  is hydrogen or hydroxy; and  $R_7$  is tri-phosphate or thiophosphate thereof and a DNA polymerase such that said compound is added to the oligonucleotide sequence.

19. A compound of the formula (III):



wherein  $R_2$  is hydrogen or hydroxy and  $R_3$  is a  $C_{2-10}$  alkynyl group optionally substituted by hydroxy, amino,  $C_{1-4}$  alkyl substituted amino,  $C_{1-4}$  alkoxy or halo, and  $R_7$  is a mono-, di- or tri-phosphate or thiophosphate thereof.